KING RIVER RESOURCES LIMITED

Vanadium Metallurgical Update

Australian Securities Exchange Announcement 18 January 2019

Highlights

- Bottle roll sulphuric acid leaches on run of mine magnetite gabbro lumps that have been crushed to sizes of 10mm, 5.6mm and 3.35mm report **77%**, **84% and 84% Vanadium (V)** extractions (dissolved) respectively.
- Bottle roll sulphuric acid leach on 2mm magnetite-ilmenite concentrate reported **81% V** extraction.
- Heated vat leach tests on 3.35mm lump gabbro report **92% V** and **61% Titanium (Ti)** extractions after **10 days**.
- These results continue to support advancing a new vanadium-titanium-iron development plan for Speewah:
  - on-site sulphuric acid vat leaching and the processing of V_2O_5, TiO_2, iron oxide and other high purity products (vanadyl sulphate and high purity alumina).
  - possible on-site production of acid, which produces surplus heat and electricity.
  - potential for scalability and possible capital and operating cost savings, whilst increasing and diversifying product outputs and revenue opportunities.
- Laboratory testwork will now involve further diagnostic vat and new column leach tests as well as testwork to extract these metals back out from sulphuric acid leach solutions.
- The methods trialed will include solvent extraction, ion exchange, thermal hydrolysis and chemical precipitation methods.

King River Resources Limited (ASX: KRR) is very pleased to provide this latest update on metallurgical results from the company's 100% owned Speewah Vanadium Project ("SVP") in the East Kimberley of Western Australia. KRR has been conducting sulphuric acid (H_2SO_4) bottle roll and diagnostic vat leach tests on magnetite-ilmenite concentrate, and coarse magnetite gabbro lumps, from the high grade zone of the Central Vanadium deposit (Figure 1). This testwork is to support a new development plan for the SVP to produce vanadium, titanium and iron products, along with other potential high value commodities (refer KRR ASX release 19 December 2018).

The Board is committed to examining this potentially lower capital and operating cost project development strategy and publish a Prefeasibility Study (PFS) towards the middle of 2019.

Bottle Roll Test Results

Nagrom has completed Bottle Roll leaching testwork on 500g samples of three coarse crushed magnetite gabbro lump sizes (10mm, 5.6mm and 3.35mm) and a 2mm magnetite-ilmenite concentrate. The samples are from the high grade zone of the Central deposit (SDH11-09 21-37.5m head grade 0.36% V_2O_5, 3.65% TiO_2, 21.37% Fe_2O_3, 12.74% Al_2O_3, 8.36% CaO, 4.33% MgO and 44.75% SiO_2; Figure 1, Table 1).

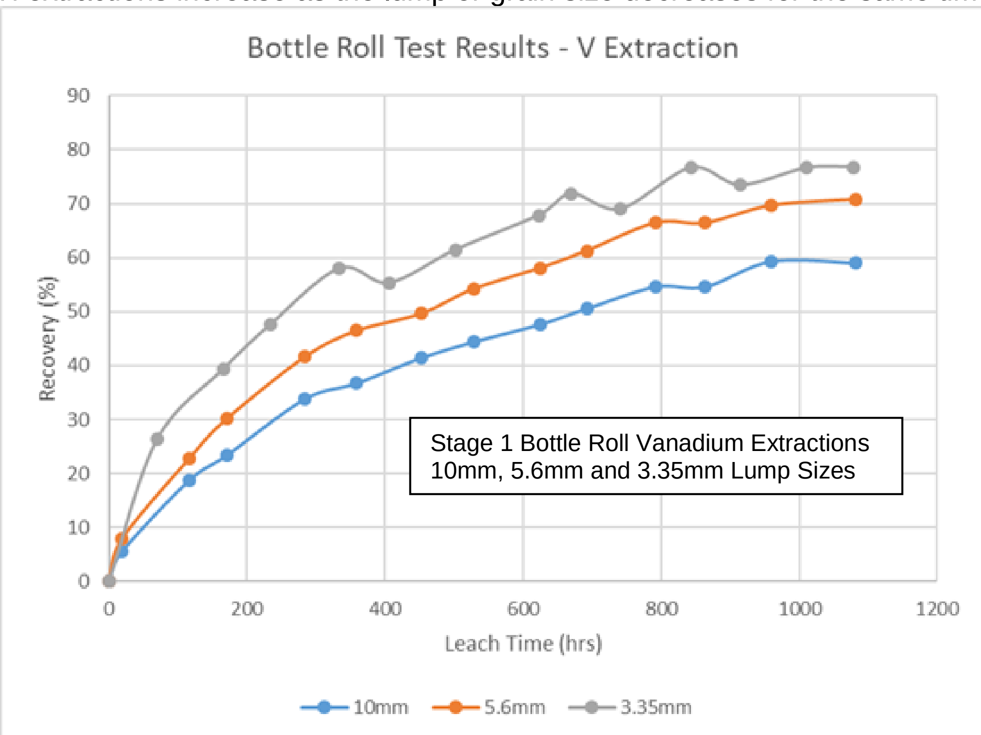
This testwork is designed to assess whether the Speewah magnetite gabbro is best suited for vat or heap leaching prior to completing laboratory diagnostic vat and column leach tests. The bottle roll tests will also help determine whether coarse crushed run-of-mine (ROM) lump material or beneficiated coarse magnetite-ilmenite concentrate will be required for the vat and column leach testwork.

Bottle Roll testwork has assessed V, Ti, Fe, Mg and Al leach efficiencies (extraction), leach time, acid consumption, mass loss, and pre- and post-leach particle size analyses. The 10mm, 5.6mm and 3.35mm gabbro lump and 2000G 2mm concentrate samples were leached under 20% H_2SO_4, 20% pulp density, ambient temperature (18°C to 30°C), and continuous agitation. There was acid replenishment when the free acid level dropped to about 100g/L. The leaches were conducted in two stages. The washed leach residues of the primary leach (Stage 1) were subjected to a secondary leach in fresh acid with the Stage 1 and Final results (primary and secondary leaches combined) summarised in the table below:

				Leach Extractions (%)							Mass Loss	Acid Consumption
Sample Type	**Time (hours)**	**Time (days)**	**Stage**	**V**	**Fe**	**Ti**	**Mg**	**Al**	**Ca**	**Si**	**%**	**kg/t**
P_{100} 10mm Lump	1081	45	Stage 1	**59**	50	15	33	22	4	1	13.33	373.8
	1891	79	Final	**77**	61	25	40	29	4	0.5	17.84	659.6
P_{100} 5.6mm Lump	1081	45	Stage 1	**71**	57	18	37	25	3	2	15.77	431.9
	1891	79	Final	**84**	67	33	45	34	5	2	29.57	632.1
P_{100} 3.35mm	1078	45	Stage 1	**77**	60	21	39	27	3	0.5	19.98	391.3
P_{100} 3.35mm	1573	66	Final	**84**	66	31	42	32	4	1	21.87	449
P_{100} 2mm Con	596	25	Stage 1	**70**	56	14	31	20	4	1	20.18	423
P_{100} 2mm Con	954	40	Final	**81**	61	22	33	24	5	1	23.65	515.1

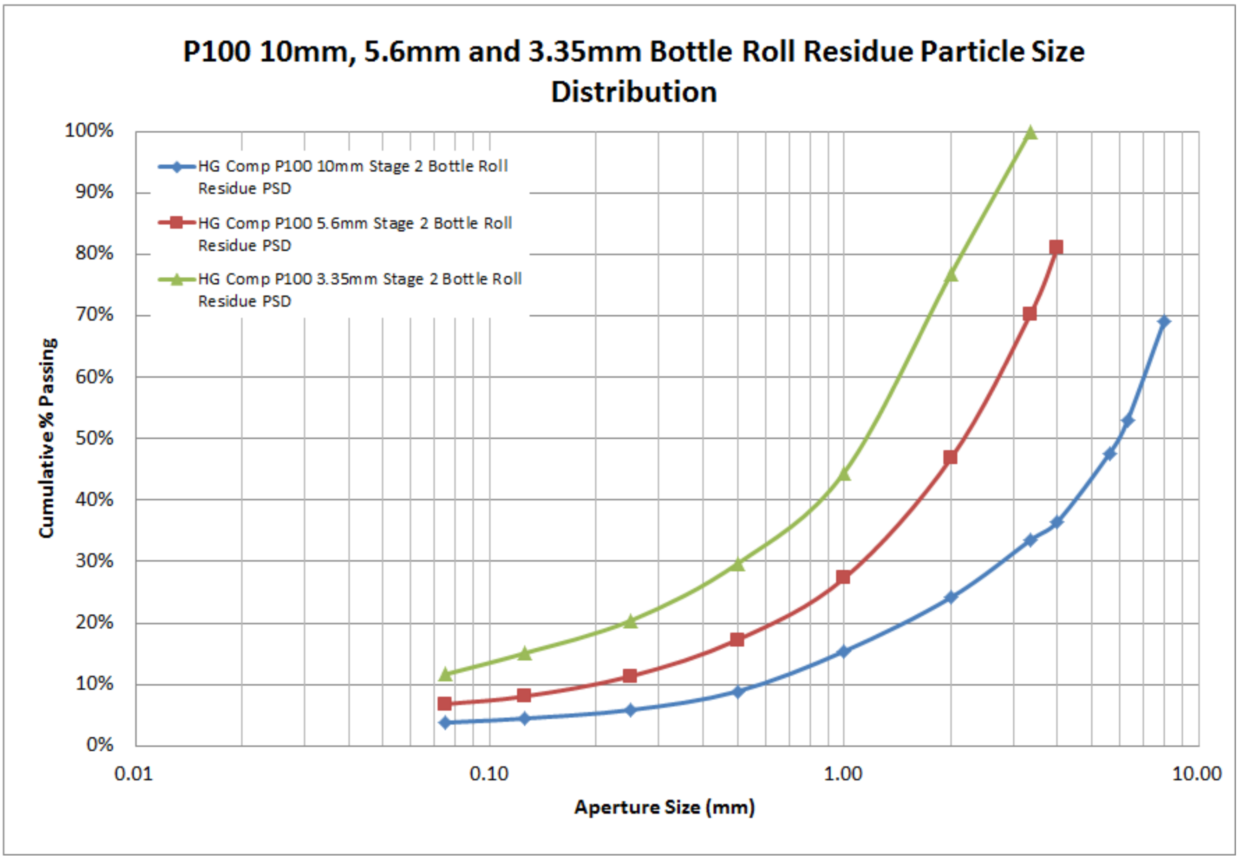
Observations and conclusions that can be drawn from the bottle roll test results include the following:

- V, Ti, Fe, Mg and Al leach efficiencies (extractions) are very good and support advancing the testwork on lump material.
- The V and Ti extractions increase as the lump or grain size decreases for the same time interval.



- Ti, Mg and Al extractions increase significantly in the secondary leaches where there is available acid.
- Acid consumption is moderate and increases in the secondary leach due to higher Ti, Mg and Al dissolution which consumes acid. The higher V and Ti grade in concentrate also consumes more acid.

- Mass loss typically is 18-24%. Mass loss increases in the secondary leach especially for the smaller lump/grain sizes. The higher mass loss of about 29% in the 5.6mm lump test is possibly due to extending the leach for too long resulting in attrition exposing more sample to acid digestion and more also ilmenite is dissolved.
- Bottle roll agitation leads to attrition of lump particles, exposes new surfaces to acid and removes surface precipitates, all of which may result in recoveries higher than achievable.
- Bottle roll tests provide an early indication of what may be possible and allow for modifying of the leach parameters to identify relationships between particle sizes, acid strength, temperatures and leach times.
- Particle size distribution (PSD) analysed the before and after effects of leaching and attrition. The 10mm and 3.35mm residues show the least changes after Stage 2 leaching. In the 5.6mm lumps, most change occurs in the coarse- and mid-range fractions of the residue, which may be due to the long leach time. The final residue PSD for the three bottle roll lump sizes are graphed below.



Diagnostic Heated Vat Leach Testwork

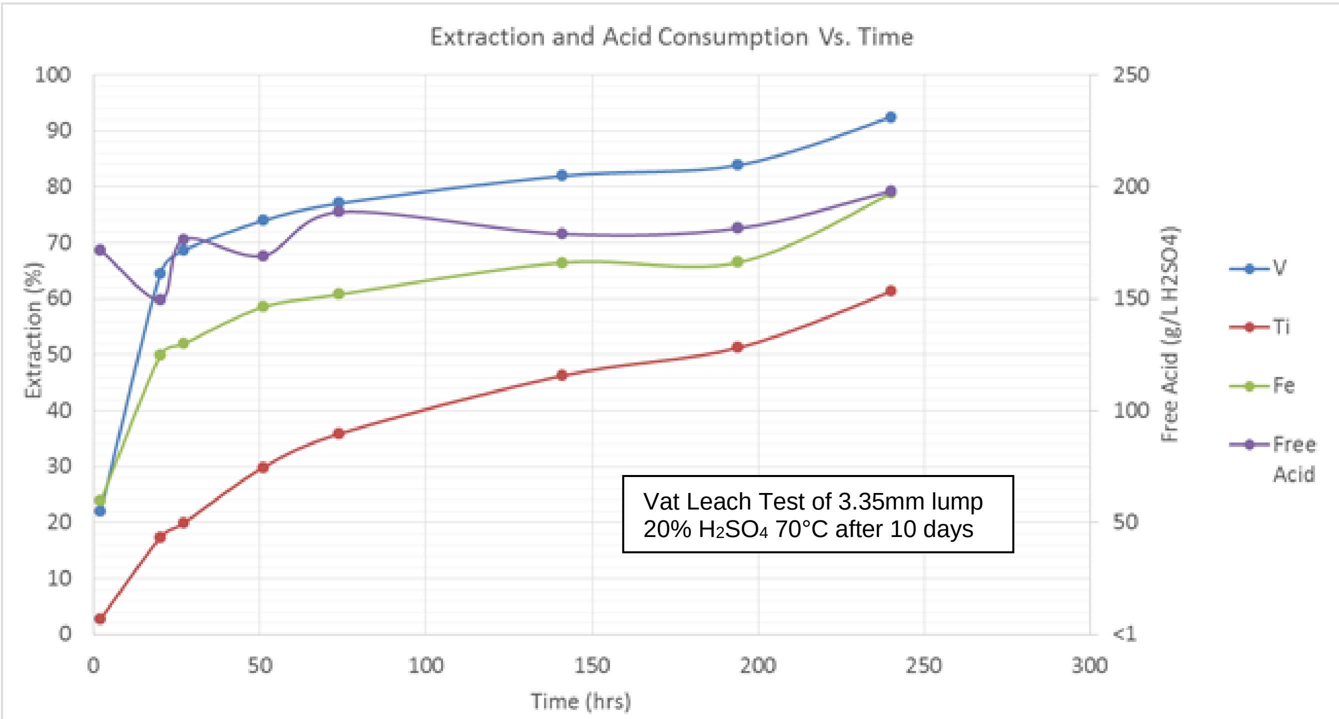
Nagrom are undertaking diagnostic heated vat leach testwork on 1000g P_{100} 3.35mm and 5.6mm lump samples. The leach design allows the critical process parameters to be adjusted and recorded. These include leach efficiencies of V, Ti, Fe, Al and Mg (% extraction), leach rate/time (hours, days), free acid level (g/L), temperature, pulp density, pH, Eh, acid consumption (kg/t), mass loss (%). The lump-acid mixture is agitated to simulate fluid flow through the vat bed.

The P_{100} 3.35mm lump vat leach tests are complete and the results are summarised in the table below. The test conditions were leach temperature 70°C, 20% pulp density, agitation, and leached in 20% and 10% H_2SO_4 acid. In the 20% acid test, the acidity was maintained between 200-150 g/L Acid. In the 10% acid test, the acidity was maintained between 100-50 g/L Acid.

				Leach Extractions (%)							Mass Loss	Acid Consumption
Sample Type	**Acid (%)**	**Time (hours)**	**Time (days)**	**V**	**Fe**	**Ti**	**Mg**	**Al**	**Ca**	**Si**	**%**	**kg/t**
P_{100} 3.35mm Lump	**20**	240	10	**92**	79	61	59	51	3.4	0.13	24.95	768
P_{100} 3.35mm Lump	**10**	240	10	**89**	69	19	50	44	3.8	0.15	24.34	691

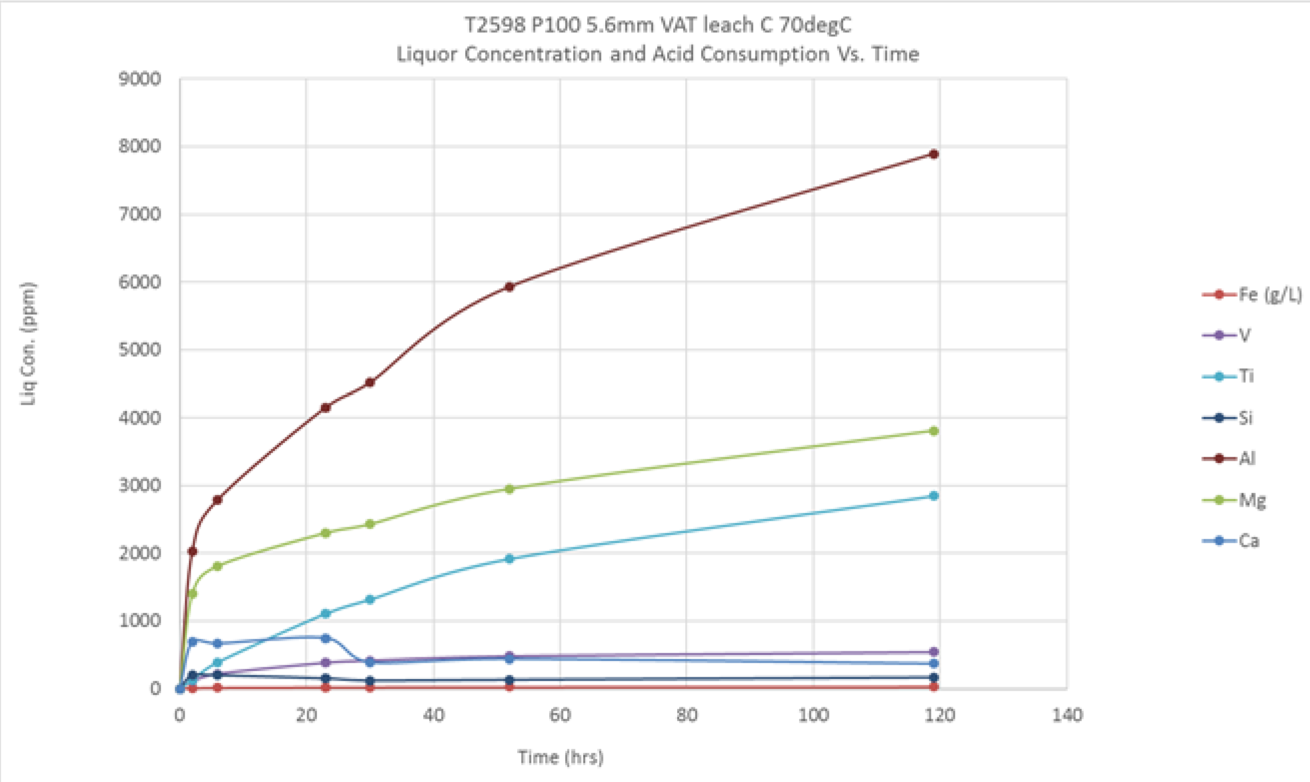
These initial diagnostic vat results show:

- Up to 92% V and 61% Ti leach extraction after 10 days (240 hours).
- Higher leach temperature and maintaining acid at 150-200mg/L have significantly increased the leaching rate of all metals.
- Higher Ti extraction requires stronger acid leach.
- Higher acid consumption related to increased Ti, Mg and Al extractions.



Leach Residue
Vat Leach Test of 3.35mm lump
20% H_2SO_4 70°C after 10 days

A diagnostic vat leach test is underway on the 5.6mm lump size, at 70°C, using 20% H_2SO_4. The solution assays after 5 days suggest the leach extractions are very similar to the 3.35mm material. A further update will report the final leach results along with a 5.6mm test using 10% H_2SO_4.



Concentrate Testwork

Nagrom produced a P_{100} 2mm concentrate from a high grade zone composite core sample of the Central deposit (SDH11-09 21-37.5m, head grade 0.36% V_2O_5, 3.65% TiO_2, 21.37% Fe_2O_3, 12.74% Al_2O_3, 8.36% CaO, 4.33% MgO and 44.75% SiO_2; location shown in Figure 1). Magnetic separation methods at different magnetic strengths were used to maximise V and Ti recovery and reject a high proportion of the ROM feed at the 2mm grain size. The testwork results below are an update of the report on 19 November 2018:

Magnetic Method and Strength	Mass Yield	Grades			Recoveries		
		V_2O_5	TiO_2	Fe	V_2O_5	TiO_2	Fe
Gauss (G)	%	%	%	%	%	%	%
LIMS 1200	42.19	0.59	5.9	19.87	68.24	67.66	55.51
MIMS 3000	74.44	0.44	4.48	16.65	91.46	92.59	83.39
MIMS 2000	65.27	0.54	5.34	18.74	88.26	89.18	60.34

A 2mm concentrate used in a vat or heap leach operation has the potential to reduce the amount of material leached as a significant amount of ROM feed can be rejected. The beneficiation plant design will be much simpler to that which was designed for an earlier Scoping Study to make a 106 micron particle size, with the flow on benefit of potential capital and operating cost savings.

If lump material is used, then there will be no magnetic separation circuit.

The 2000 Gauss 2mm concentrate sample was used in sulphuric acid bottle roll testwork. Future leach tests will look at agglomerating the concentrate and dosing with sulphuric acid.

Nagrom Testwork Planned

- Percolation tests on 5.6mm lump and -2mm con agglomerate. The 5.6mm test is underway.
- Agglomeration test on -2mm concentrate, binding and dosing with sulphuric acid.
- Diagnostic Heated Vat Leach tests using 5.6mm and 10mm lumps and agglomerated 2mm concentrate, heated to different temperatures (50, 60, 70°C in different acid strengths (5, 10, 20% H_2SO_4).
- Heated flooded column leach testwork. This test is run with 4-5kg of solid material in a column, initially using 5.6mm lump. The test will be run at 70°C with the acidic solution flowing upwards through the vat bed.

Refining Processing of V, Ti and Fe Products

TSW Analytical Pty Ltd (TSW Analytical) is undertaking sulphuric acid leaches on 106 micron concentrate samples to make vanadium pentoxide, titanium dioxide, iron oxide and vanadyl sulphate products initially trialing solvent extraction (SX), ion exchange (IX) and chemical precipitation methods. This work is ongoing and results will be reported separately.

New SVP Plan

Metallurgical testwork and studies to be addressed in the new SVP Plan include:

- ❖ Complete Vat and Flooded Column Leach testwork on the preferred sample size, including testing the effects of agglomeration to reduce the amount of free fines and run percolation tests, and examine the effects of changes in the temperature and acid concentrations, and other design modifications, on leach recoveries, leach times, acid consumption, mass loss and vat shrinkage (slump).
- ❖ Further Hydrometallurgical Process Flow Sheet development trialing solvent extraction, ion exchange, thermal hydrolysis and chemical precipitation methods. Recovery of sulphur values as sulphur dioxide (SO_2) from the iron product is an important part of the process as it has the potential to reduce the sulphuric acid requirement.
- ❖ Beneficiation Plant design and capital and processing cost estimates for lump and coarse-grained concentrate options.
- ❖ Capital and operating costs for Vat Leach operation.
- ❖ Options analysis into the capital and operating costs for an on-site Sulphuric Acid Plant compared to importing acid and contract diesel power generation, including the supply, port access and transport of sulphur and sulphuric acid.
- ❖ Geotechnical studies on drill core to help finalise pit design.
- ❖ Environmental, heritage and marketing studies.

Once these items have been addressed, KRC will complete a Prefeasibility Study into the preliminary economics of the SVP suitable for release to the market in accordance with the reporting requirements for production targets and forward looking statements. The modifying factors listed in the JORC 2012 Code will be considered to address the Material Assumptions for the Prefeasibility Study.

Directors Comments

The Board is most encouraged by the bottle roll and vat leach test results to date and will now fast track the vat and column leach testwork so our vat leach plant design and costings can be finalised as soon as possible.

A trade off analysis into the optimum particle size will be undertaken.

There may prove to be some potential to use a coarse 2mm concentrate for the vat leach operation as it would significantly reduce the amount of material leached and possibly shorten leaching times.

A 2mm concentrate beneficiation plant would also be a simpler design to the facility used in the recently released Vanadium Scoping Study that generated a 106 micron (~1/10th of a mm) concentrate.

Alternatively, if lump ROM material was chosen in the coming months to be the most economic option to be used in the PFS, then there will be no fine grinding or magnetic separation circuit required.

During 2019, KRC aims to present shareholders with the most prudent commercial strategy to develop the Speewah vanadium deposits and advance towards the production of Vanadium, Titanium and Iron products at the lowest possible unit cost.

Anthony Barton
Chairman
King River Resources Limited

Statement by Competent Person

The information in this report that relates to Exploration Results, Mineral Resources, Metallurgy and Previous Studies is based on information compiled by Ken Rogers (BSc Hons) and fairly represents this information. Mr. Rogers is the Chief Geologist and an employee of King River Resources Ltd, and a Member of both the Australian Institute of Geoscientists (AIG) and The Institute of Materials Minerals and Mining (IMMM), and a Chartered Engineer of the IMMM. Mr. Rogers has sufficient experience of relevance to the styles of mineralisation and the types of deposits under consideration, and to the activities undertaken, to qualify as a Competent Person as defined in the 2012 Edition of the Joint Ore Reserves Committee (JORC) Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves. Mr. Rogers consents to the inclusion in this report of the matters based on information in the form and context in which it appears.

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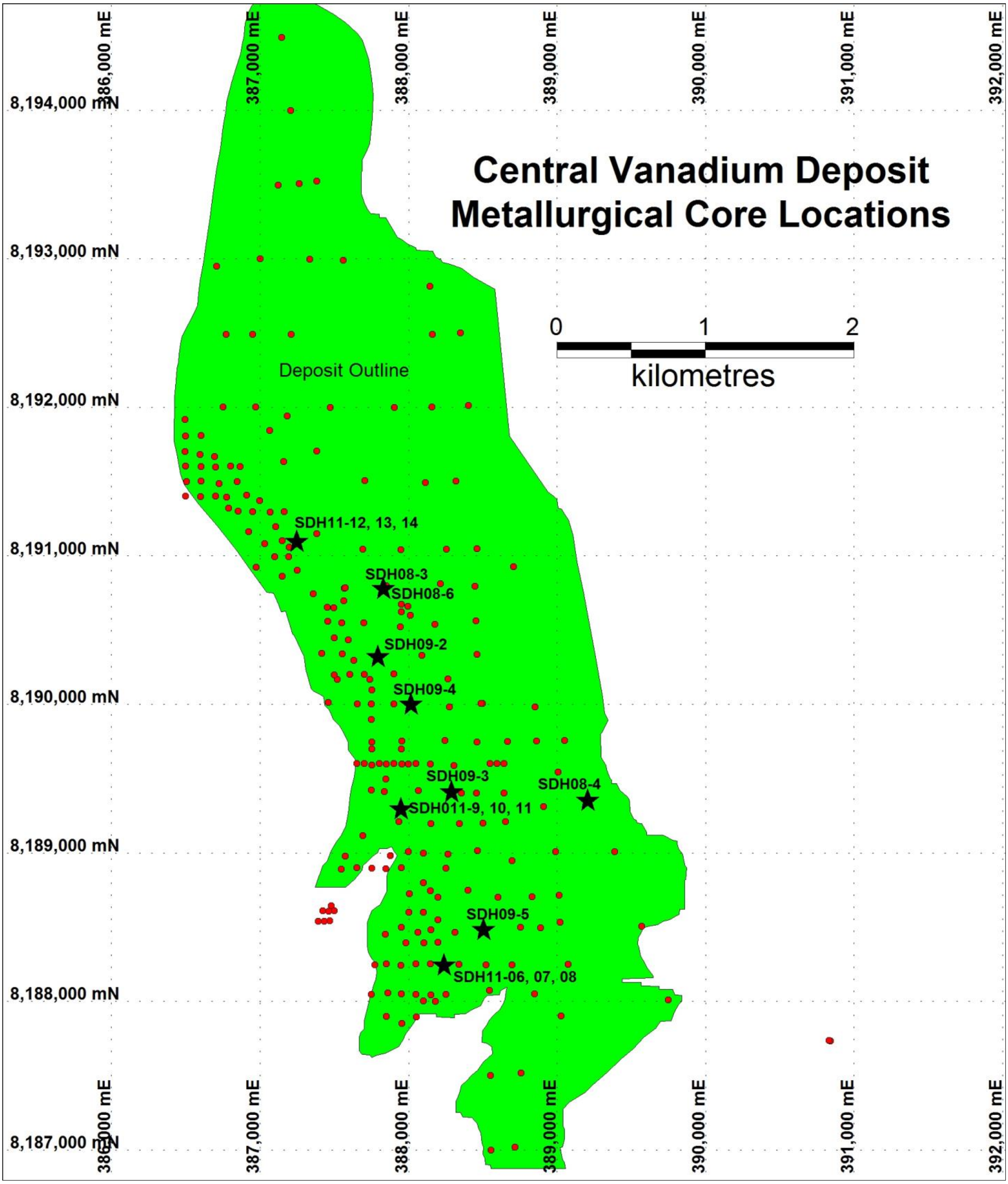

Figure 1: Diamond core hole locations (black stars) and Reverse Circulation drill holes (red dots) within the Central Vanadium Deposit, including metallurgical core holes SDH08-06 and SDH11-09 referred to in this announcement. Diamond core hole collar data is given in Table 1.

Table 1: Diamond core holes drilled in the Central deposit

Hole_id	Deposit	East_GDA	North_GDA	RL	Depth	Dip	Azimuth	Tenement
		m	m	m	m	degrees	degrees	
SDH08-3	Central	387830.42	8190778.6	197.037	80	-90	0	E80/2863
SDH08-4	Central	389203.71	8189358.8	190.014	75	-90	0	E80/2863
SDH08-6	Central	387831.84	8190783.9	197.187	450.5	-90	0	E80/2863
SDH09-2	Central	387793.53	8190327.7	196.267	50	-90	0	E80/2863
SDH09-3	Central	388287.08	8189417.5	189.987	70.5	-90	0	E80/2863
SDH09-4	Central	388016.74	8190007.5	194.698	42.1	-90	0	E80/2863
SDH09-5	Central	388502.3	8188487.8	186.4	57.1	-90	0	E80/2863
SDH11-06	Central	388234.08	8188240.6	188.018	39.4	-90	0	E80/2863
SDH11-07	Central	388234.04	8188243.7	187.999	41.6	-90	0	E80/2863
SDH11-08	Central	388234.08	8188246.9	187.941	40.9	-90	0	E80/2863
SDH11-09	Central	387946.28	8189294	191.676	40.9	-90	0	E80/2863
SDH11-10	Central	387945.75	8189295.9	191.643	39.4	-90	0	E80/2863
SDH11-11	Central	387945.33	8189297.8	191.706	40.9	-90	0	E80/2863
SDH11-12	Central	387243.47	8191101.7	212.529	41	-90	0	E80/2863
SDH11-13	Central	387242.63	8191101.2	212.467	41	-90	0	E80/2863
SDH11-14	Central	387241.65	8191100.6	212.457	40.1	-90	0	E80/2863

Appendix 1: King River Copper Limited Speewah Project JORC 2012 Table 1

Section 1 : Sampling Techniques and Data

Criteria	JORC Code explanation	Commentary
Sampling Techniques	*Nature and quality of sampling (e.g. cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc.). These examples should not be taken as limiting the broad meaning of sampling.* *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.* *Aspects of the determination of mineralisation that are Material to the Public Report. In cases where 'industry standard' work has been done this would be relatively simple (e.g. 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (e.g. submarine nodules) may warrant disclosure of detailed information.*	This ASX Release dated 18 January 2019 reports on further metallurgical testwork on samples from the Central Vanadium deposit at KRC's Speewah Project. *RC and Diamond Core Samples* 134 Reverse Circulation (RC) holes (5,268 metres) and 30 diamond (DD) core holes are within the modelled mineralisation envelopes of the Mineral Resource estimates. RC chip samples were used in previous beneficiation and variability metallurgical testwork completed in 2006-2011. A 28.42kg composite of 12 RC holes was used in the initial beneficiation and microleach tests reported in 2017 (KRC ASX announcement 21 August 2017). 16 HQ DD core holes were drilled in the Central Vanadium deposit (see Figure 1 and Table 1 for locations). Two of these core holes from the high grade zone (SDH08-06 - 42.66m-59.45m and SDH11-09 - 21-37.5m) have been used in the beneficiation and hydrometallurgical metallurgical tests reported in announcements to date. A 29.47kg composite magnetite gabbro sample of HQ ¼ core from the high grade zone of drillhole SDH08-06 at 42.66-59.45m downhole was used to make a 106um and 120um concentrates used in previous hydrometallurgical test work previously reported. The head assay of this sample is 0.393% V_2O_5, 3.561% TiO_2 and 21.225% Fe_2O_3. A 60kg composite magnetite gabbro sample of HQ ¼ core from the high grade zone of drillhole SDH11-09 – 21-37.5m downhole has been used in the beneficiation and bottle roll and vat leach metallurgical tests reported in this announcement. The head grade of this sample is 0.36% V_2O_5, 3.65% TiO_2, 21.37% Fe_2O_3, 12.74% Al_2O_3, 8.36% CaO, 4.33% MgO and 44.75% SiO_2. *Metallurgical Bottle Roll Samples:* Nagrom bottle roll tests used 500g subsamples of a 60kg composite sample of ¼ core from the high grade zone interval of diamond core hole SDH11-09 21-37.5m, crushed to lump sizes of 10mm, 5.6mm and 3.35mm. Bottle roll tests used 500g of lump material leached in 20% H_2SO_4 at ambient temperature (18° to 30°C), at 20% pulp density and with continuous agitation. Final results are reported in this announcement. *Metallurgical Diagnostic Vat Samples* Nagrom diagnostic vat tests used 1000g subsamples of a 60kg composite sample of ¼ core from the high grade zone interval of diamond core hole SDH11-09 21-37.5m, crushed to lump sizes of 3.35mm and 5.6mm. Vat tests used 1000g of lump material leached in 20% and 10% H_2SO_4 at 70°C temperature, at 20% pulp density and with continuous agitation. Final and interim results are reported in this announcement.

Sampling Techniques (continued)		*Metallurgical Concentrate Samples:* Nagrom magnetic separation test used a 10kg subsample of a 60kg sample of ¼ core from the high grade zone interval of diamond core hole SDH11-09 21-37.5m, crushed and ground to P100 2mm. Magnetic separation methods were 1200G LIMS, and 2000G and 3000G MIMS to produce a coarse grained concentrate. The 2000G MIMS concentrate was used in the bottle roll testwork. *Metallurgical Hydrometallurgical Samples:* Nagrom produced a magnetite concentrate from SDH08-6 42.66-59.45m drill core using a MIMS-cleaner MIMS-recleaner LIMS test circuit and produced a concentrate with a grain size of P_{80} 106 microns that assayed 1.7% V_2O_5, 15.37% TiO_2 and 60.04% Fe_2O_3, with 14.49% SiO_2, 4.02% Al_2O_3, 3.77% CaO and 2.35% MgO. TSW has leached this concentrate sample using 45% -98% sulphuric acid at 10% pulp density, heated to 90^{O}C and stirred for 4 hours. KRR 5 October 2018 announcement reported the first sulphuric acid leach (LT44) at 45% H2SO4 with 97% V and 86.6% Fe leach efficiencies but lower titanium (58.1%). Further sulphuric acid leaches (LT45-50) are being finalised. The leachate from these leaches will be used for hydrometallurgical extraction testwork using solvent extraction, ion exchange and chemical precipitation methods to separate V_2O_5, TiO_2 and Fe_2O_3 products.
Drilling techniques	*Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc.) and details (e.g. core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc.).*	RC using a 5.75" hammers and diamond (NQ and HQ3 size) drilling were completed to support the preparation of the Mineral Resource estimate. Holes drilled vertical. Metallurgical testwork completed on ¼ HQ3 core composite samples from two metallurgical diamond drill core holes (Figure 1 and Table 1): • SDH08-06 42.66m-59.45m (High Grade Zone), and • SDH11-09 6-16m (Low Grade Zone) and 21-37.5m (High Grade Zone).
Drill sample recovery	*Method of recording and assessing core and chip sample recoveries and results assessed.*	No qualitative recovery data was recorded. Qualitative examination and photography suggested RC and diamond recoveries are very high. Good ground conditions exist which suggests recovery is likely to be very high.
	Measures taken to maximise sample recovery and ensure representative nature of the samples.	HQ3 (triple tube) drilling was used to maximise diamond sample recovery.
	Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.	No relationship between grade and recovery has been identified.

Logging	*Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.*	DD core and RC chips were geologically logged, with descriptions of mineralogy and lithology noted.
	Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc.) photography.	Logging was generally qualitative in nature. DD core photographed wet.
	The total length and percentage of the relevant intersections logged.	SDH08-06 - 0-450.5m, 100% logged. SDH11-09 – 0-40.9m, 100% logged.
Sub-sampling techniques and sample preparation	*If core, whether cut or sawn and whether quarter, half or all core taken.*	DD core was cut in half with a core saw. Some half sections sawn in quarters. ¼ core used in testwork.
	If non-core, whether riffled, tube sampled, rotary split, etc. and whether sampled wet or dry.	Not applicable as samples used in the reported testwork were DD core.
	For all sample types, the nature, quality and appropriateness of the sample preparation technique.	Whole continuous lengths of DD ¼ core samples collected, composited and used in testwork. These were collected to represent the composite intervals of both the High Grade and Low Grade Zones.
	Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.	Subsampling is performed during the preparation stage according to the metallurgical laboratories' internal protocol.
	Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/second-half sampling.	Use of DD core in metallurgical testwork gives a continuous insitu sample. HQ3 triple tube ensures high recovery rates. DD core twinned previous RC drill holes. Whole sample interval used in testwork.
	Whether sample sizes are appropriate to the grain size of the material being sampled.	Sample sizes are considered appropriate to the grain size of the material being sampled.

Quality of assay data and laboratory tests	*The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*	TSW Testwork Testwork includes sulphuric acid leaches, evaporation under reflux conditions, chemical precipitation and solvent extraction and ion exchange tests. Assays are conducted on leach solutions and solid residues. Fe_2O_3, TiO_2 and V_2O_5 extraction tests are underway and planned. TSW Analytical is a well-established analytical service provider that has developed a reputation for producing accurate analyses for complex samples. The company's expertise has assisted with the development of hydrometallurgical flow-sheets for multi-element ore concentrates. The titaniferous vanadiferous magnetite concentrate (supplied by the client) and leach residues have been assayed using ICP-AES and ICP-MS. Samples were fused in a lithium borate flux, the resultant glass bead was dissolved in hydrochloric acid and suitably diluted for either ICP-MS or ICP-AES analysis. Loss on Ignition (LOI) at 1000 ^{O}C was performed for completeness of the analytical data and to give a better indication of the total analytical percentage approximation to 100%. The leach solutions and wash liquors have been analysed using ICP-AES and ICP-MS. The samples were diluted suitably for the appropriate ICP based analysis. Dilutions are used to bring the analyte concentration into the optimum analytical range of the ICP instrument used and to reduce matrix interference complications during quantification. Leach efficiency has been determined using the mass of the total analyte in the leach residue divided by the mass of the total analyte in the initial titaniferous vanadiferous magnetite concentrate used. The resulting fraction is multiplied by 100 to give a percent leach efficiency. TSW Analytical uses in-house standards and Certified Reference Materials (CRMs) to ensure data are "Fit-For-Purpose". Nagrom Testwork Nagrom produced a magnetite-ilmenite concentrate by a combination of Medium Intensity Magnetic Separation (MIMS) and Low Intensity Magnetic Separation (LIMS) tests to be used for hydrometallurgical tests. All solid samples have been analysed via XRF. The prepared sample is fused in a lithium borate flux with a lithium nitrate additive. The resultant glass bead is analysed by XRF. Loss on Ignition (LOI) is also conducted to allow for the determination of oxide totals. All solution samples are diluted and then analysed by ICP. Dilutions bring the concentration level to within the analytical range of the ICP instruments. Diluents are matched to sample matrix.

	For geophysical tools, spectrometers, handheld XRF instruments, etc., the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.	No geophysical data was collected.
	Nature of quality control procedures adopted (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established.	TSW Analytical Concentrations are reported as micrograms per gram (µg/g) in the solid unless otherwise stated, Instrumental response is measured against AccuTrace High Purity multi-element standards (Choice Analytical) to achieve quantitation. Data are subjected to in-house QA and QC procedures where an independent analyst recalculates instrumental output and compares the newly generated data set with the original. Lack of equivalence between the two data sets triggers an internal review and if necessary re-analysis of the entire data set. Under these circumstances a third independent analyst will assess all generated data prior to sign off. Initial equivalence between the two data sets, generated by the analyst and reviewer, will clear data for remittance to the customer. All reports are reviewed by an independent analyst prior to submission to the customer and where necessary relevant changes, such as wording that may give rise to possible ambiguity of interpretation, will be modified prior to the final report being sent to the customer. Nagrom is certified to a minimum of ISO 9001:2008.
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.*	Significant intersections have been verified by alternative company personnel.
	The use of twinned holes.	All metallurgical DD core holes twinned previous RC holes. SDH08-06 was drilled twice. SDH11-09 has been twinned by SDH11-10 and SDH11-11 (see Figure 1 and Table 1) which is being used in current bottle roll and vat leach testwork.
	Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.	Templates have been set up to facilitate geological logging. Prior to the import into the central database, logging data is validated for conformity and overall systematic compliance by the geologist. Assay results are received from the laboratory in digital format. Assays, survey data and geological logs incorporated into a database.
	Discuss any adjustment to assay data.	No adjustments or calibrations will be made to any primary assay data collected for the purpose of reporting assay grades and mineralised intervals.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.*	Almost 90% of the collars used in the resource estimate have been surveyed using a differential global positioning system (DGPS) instrument, with the remaining surveyed using a hand-held GPS. Downhole deviations have been measured by downhole survey instruments on 3 holes only using a Globaltech Pathfinder digital downhole camera. All but four holes are vertical. All metallurgical holes are vertical. The vertical and shallow nature of the drilling means that the absence of downhole surveys is not considered a material risk.
	Specification of the grid system used.	The adopted grid system is GDA 94 Zone 52.
	Quality and adequacy of topographic control.	A topographic file provided by KRC was calibrated for use in the Mineral Resource estimate using DGPS and GPS collar data. The Competent Person considers that the topography file is accurate given the use of DGPS data in the Mineral Resource area.

Data spacing and distribution	*Data spacing for reporting of Exploration Results.*	RC drill spacing is mostly 250 m by 250 m at the Central deposit, closing down to 100 m by 100 m in the western area (see Figure 1). Metallurgical DD core holes are spaced about 500 m apart (see Figure 1).
	Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.	The Competent Person believes the mineralised domains have sufficient geological and grade continuity to support the classification applied to the Mineral Resources given the current drill pattern.
	Whether sample compositing has been applied.	Metallurgical samples were composited to represent the High Grade and Low Grade Zones within the magnetite gabbro and within the resource envelope. This was considered appropriate given the metallurgical testwork was designed to test the lower and high grade zones of the mineralisation and it provided for a bulk sample suitable for the testwork.
Orientation of data in relation to geological structure	*Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.*	All metallurgical DD core holes are vertical. This allows the holes to intersect the mineralisation at a high-angle as the magnetite gabbro has a very shallow dip to the east.
	If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.	The relationship between the drilling orientation and the orientation of key mineralised structures is not considered to have introduced a sampling bias.
Sample security	*The measures taken to ensure sample security.*	Chain of Custody is managed by the Company until samples pass to a duly certified metallurgical laboratory for subsampling, assaying, beneficiation and hydrometallurgical test work. The RC assay pulp bags are stored on secure sites and delivered to the metallurgical laboratory by the Company or a competent agent. The chain of custody passes upon delivery of the samples to the metallurgical laboratory.
Audits or Reviews	*The results of ay audits or reviews of sampling techniques and data.*	No external audits have been completed.

SECTION 2 : REPORTING OF EXPLORATION RESULTS

Criteria	JORC Code explanation	Commentary
Mineral tenement and land tenure status	*Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.* *The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.*	The Speewah Project comprises 12 Exploration Licences, three Mining Leases and two Miscellaneous Licences. Details are listed in Table 1 Schedule of Tenements held at 30 September 2018 reported previously in the September Quarterly Report. The Speewah test work reported in this announcement are from samples collected entirely within E80/2863. The tenements are 100% owned by Speewah Mining Pty Ltd (a wholly owned subsidiary of King River resources Limited), located over the Speewah Dome, 100km SW of Kununurra in the East Kimberley. The tenements are in good standing and no known impediments exist. No Native Title Claim covers the areas sampled and drilled. The northern part of the tenements (but not E80/2863) is in the Kimberley Heritage Area.
Exploration done by other parties	*Acknowledgment and appraisal of exploration by other parties.*	No exploration completed by other parties is relevant for the metallurgical testwork reported herein.
Geology	*Deposit type, geological setting and style of mineralisation.*	The ferrovanadium titanium (Ti-V-Fe) deposits represent part of a large layered intrusion (the Hart Dolerite), which was intruded c1790 Ma into the Palaeo-Proterozoic sediments and minor volcanics of the 1814 Ma Speewah Group in the East Kimberley Region of Western Australia. The deposits occur within the Speewah Dome, which is an elongated antiform trending N-S. The dome is about 30 km long and attains a maximum width of about 15 km. The Hart Dolerite sill forms the core of the dome. Since the deposit discovery in 2006, at least two distinct types of felsic granophyres and three mafic gabbros have been identified in the Hart Dolerite as follows: • K felsic granophyre (youngest) • Mafic granophyre • Pegmatoidal gabbro • Magnetite gabbro (host unit) • Felsic gabbro (oldest). The vanadium-titanium mineralisation is hosted within a magnetite bearing gabbro unit of the Hart Dolerite, outcropping in places and forming a generally flat dipping body that extends over several kilometres of strike and width. The layered sill is up to 400m thick containing the magnetite gabbro unit which is up to 80m thick. Given the mode of formation, mineralisation displays excellent geological and grade continuity which was considered when classifying the Mineral Resource estimate. Exposure is limited and fresh rock either outcrops or is at a shallow depth of a few metres. Ti-V-Fe mineralisation occurs as disseminations of vanadiferous titano-magnetite and ilmenite. Within the tenements the vanadium deposits have been divided into three deposits – Central, Buckman and Red Hill. The test work reported in this announcement was sampled from the Central vanadium deposit (Figure 1).

Drill hole Information	*A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ○ *easting and northing of the drill hole collar* ○ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ○ *dip and azimuth of the hole* ○ *down hole length and interception depth* ○ *hole length.* ○ *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	New exploration results are not being reported. Locations of diamond (DD) core holes, including metallurgical core holes used in this announcement, are shown on Figure 1 and Table 1.
Data aggregation methods	*In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. cutting of high grades) and cut-off grades are usually Material and should be stated.*	Exploration results are not being reported.
	Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.	Continuous lengths of ¼ core composited for metallurgical samples from the Low Grade and High Grade Zones.
	The assumptions used for any reporting of metal equivalent values should be clearly stated.	No metal equivalent values are used for reporting.
Relationship between mineralisation widths and intercept lengths	*These relationships are particularly important in the reporting of Exploration Results. If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported. If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (e.g. 'down hole length, true width not known').*	Due to the very shallow dip of the mineralisation, the vertical metallurgical DD core holes represent almost the true width of the mineralisation.
Diagrams	*Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	Figure 1 shows the location of diamond core holes within the Central Vanadium deposit referred to in this announcement.
Balanced reporting	*Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	Reports on previous metallurgical results can be found in ASX Releases that are available on our website, including announcements 1 April 2010, 15 July 2010, 9 November 2010, 8 February 2012, 21 April 2017, 21 August 2017, 9 October 2017, 4 December 2017, 30 January 2018, 27 February 2018, 21 March 2018, 25 June 2018, 23 July 2018, 15 October 2018 and 19 November 2018.
Other substantive exploration data	*Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	Updated vanadium resource estimates in accordance with the JORC 2012 guidelines were reported in KRC ASX announcement 26 May 2017.
Further work	*The nature and scale of planned further work (e.g. tests for lateral extensions or depth extensions or large-scale step-out drilling). Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	Further metallurgical tests are planned to increase metal recoveries, shorten leach times and reduce acid consumption, and trialing selective chemical precipitation, thermal hydrolysis, ion exchange and solvent extraction methods to precipitate vanadium pentoxide and titanium dioxide, and make vanadium electrolyte.